
**Compliance Biology, Inc., "Results of Butterfly Surveys on the Newhall Ranch
Project Site, Los Angeles County, California" (September 16, 2004; 2004A)**



only
2004

September 16, 2004

Results of Butterfly Surveys on the Newhall Ranch Project Site, Los Angeles County, California.

INTRODUCTION

At the request of Compliance Biology, Inc. (CBI), Guy P. Bruyea conducted a field survey of the above-referenced site in the Santa Clarita area of northwestern Los Angeles County, California. The specific goal of this survey was to assess potential suitability of the Newhall Ranch development area (Newhall Ranch) as habitat to support the San Emigdio blue butterfly (*Plebulina emigdionis*, herein referred to as SEB), a federal species of concern. Additional searches were conducted for habitat that may support the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*, herein QCB), historically known from other areas of Los Angeles County south of the project site. In addition to surveys for habitat that may support the aforementioned butterfly taxa, a general butterfly inventory was performed during a series of thirty-two site visits in April and May 2004. This report describes the relevant vegetation, topography, and present land use throughout the Newhall Ranch site in an effort to assess the overall quality of the habitat as it pertains to special-status butterfly species and general butterfly diversity on the site.

Survey Location

The ± 4000-acre Newhall Ranch site is generally located west of Six Flags Magic Mountain Park and west of Interstate Highway 5 (I-5) south of the Santa Clara River Basin and Highway 126 (Exhibit 1). The site contains a total of ten survey sub areas within the Newhall site, six of these sub areas are south of Highway 126: 1) Potrero Valley; 2) Oak Valley; 3) Onion Fields; 4) Long Canyon; 5) Mesas East; and 6) Mesas West, and four additional survey sub areas are north of Highway 126: 7) River Village; 8) Homestead; 9) Chiquito; and 10) WRP site.

SENSITIVE BUTTERFLY SPECIES BACKGROUND INFORMATION

There are approximately 135 recorded butterfly species from Los Angeles County, of which approximately 120 are considered resident. Some species have adapted well to ornamental landscapes, but many formerly common species have now become increasingly rare over the past few decades due to urban expansion and other factors. Several butterflies presently (and/or historically) found in Los Angeles County are now protected or are considered

Scanned

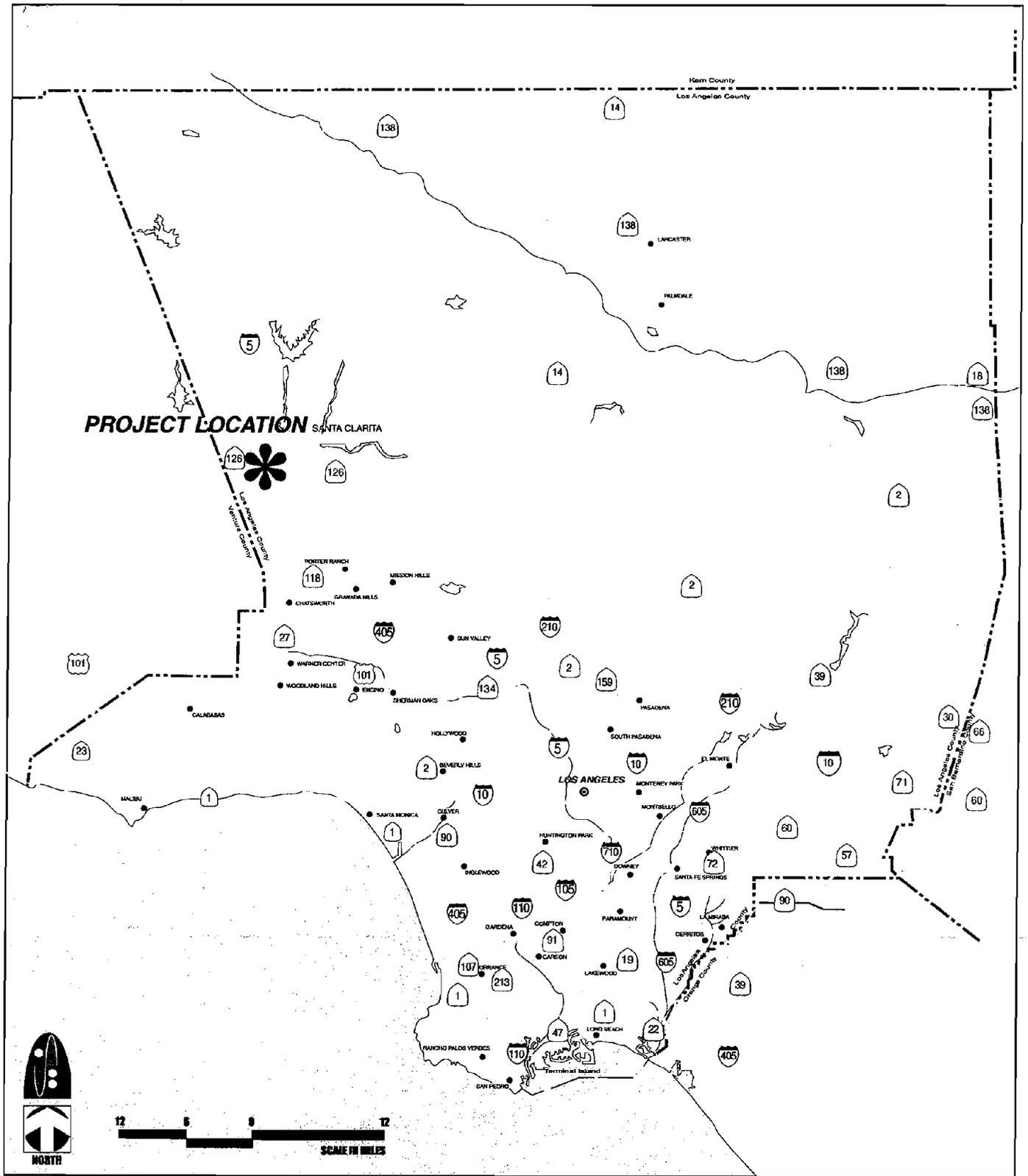


Exhibit 1
REGIONAL LOCATION

species of special concern by federal agencies. Several additional species are considered to be rare by professional entomologists in the region, but are afforded no protection status by any regulatory agencies. A complete list of all sensitive butterfly species is provided in Table 1. At least three butterfly species that once occurred in Los Angeles County are now presumably extinct. These include, 1) the unsilvered fritillary (*Speyeria adiastrata atossa*), which was last observed near Mt. Pinos in 1959, 2) a very localized race of the Sonoran blue (*Philotes sonorensis*) that once occurred in the upper San Gabriel wash above Azusa (to 1968), and 3) the Palos Verdes blue (*Glaucopsyche lygdamus palosverdesensis*, herein referred to as PVB), which was last observed on the Palos Verdes peninsula in 1983.

Table 1.
Los Angeles County Sensitive Butterflies

Common Name	Scientific Name	Status	Range*
Quino Checkerspot	<i>Euphydryas editha quino</i>	FE	N
El Segundo Blue	<i>Euphilotes battoides allyni</i>	FE	N
Palos Verdes Blue	<i>Glaucopsyche lygdamus palosverdesensis</i>	FE	N
San Emigdio Blue	<i>Plebulina emigdionis</i>	[FSC]	Y
Santa Monica Mountains Hairstreak	<i>Satyrium auretteorum fumosum</i>	[FSC]	N
Emmel's Elfin	<i>Callophrys mossii hidakupa</i>	[FSC]	N
Wandering Skipper	<i>Panoquina errans</i>	[FSC]	N
Alkali Skipper	<i>Pseudocopaodes eunus</i>	[FSC]	N
Tehachapi Mountains Silverspot	<i>Speyeria egleis tehachapina</i>	[FSC]	N
Monarch Butterfly	<i>Danaus plexippus</i>	**	Y
Comstock's Blue	<i>Euphilotes battoides comstocki</i>	r	N
Bright Blue Copper	<i>Lycena heteronea clara</i>	r	N
Veined Blue	<i>Icaricia neurona</i>	r	N
Green (=Skinner's) Blue	<i>Icaricia lupini chlorina</i>	r	N
Unsilvered Fritillary	<i>Speyeria adiastrata atossa</i>	X	N
San Gabriel Mountain Sonoran Blue	<i>Philotes sonorensis extinctus</i>	X	N

*Indicates whether survey area is within known historical range of indicated taxon (Y=yes, N=no)
FE=Federally endangered, [FSC]=Federal Species of Concern, r = species considered rare by professional entomologists (no status); X=Presumed extinct (no status), ** Over-wintering (or roosting) sites should be protected, butterfly probably not at risk currently

Three butterfly species known from Los Angeles County are now on the federal list of endangered wildlife. These include the El Segundo blue (*Euphilotes battoides allyni*, herein referred to as ESB), the QCB, and the PVB.

No recent records for QCB exist from Los Angeles County. Populations of QCB are historically known from two locations in the Santa Monica Mountains, 1) Tapia Camp (1947), and 2) Point Dume (1954). Both of these colonies appear to have been extirpated, as adults have not been observed at or in the vicinity of either location since the mid-1950's. Most extant populations of QCB are known from southwestern Riverside County in the vicinity of Temecula and Murrieta, and southern San Diego County in the vicinity of Otay Mountain.



The ESB is restricted to the coastal dune systems in southwestern Los Angeles County. The ESB is presently known from only three locations: 1) the dunes west of the Los Angeles International Airport (LAX); 2) the dunes west of the Chevron Oil refinery immediately south of LAX; and, 3) Malaga Cove north of the Palos Verdes peninsula. This butterfly is strongly associated with the flower heads of its host plant, coastal or dune buckwheat (*Eriogonum parviflorum*). Adults are active in a single brood from mid-July to early September.

The PVB was restricted to the Palos Verdes peninsula where it flew in a single generation during February and March. This butterfly was strongly associated with its principal host plant, milkvetch (*Astragalus trichopodus* var. *lonchus*). The closest relative of the PVB is the southern blue (*Glaucopsyche lygdamus australis*), which occurs throughout most of the remainder of southern California. The southern blue is known to feed in the larval stage primarily on deerweed (*Lotus scoparius*), although larvae occasionally have been found on milkvetch.

The PVB was believed to have become extinct in 1983 when the last known large stand (approximately 120 plants) of milkvetch was eliminated by construction of a baseball field at Hesse Park on the peninsula. In the spring of 1994, a colony of what is considered by some researchers to be the PVB was discovered at a slightly more inland locality on Navy property in San Pedro. At this locality the butterflies are associated with both milkvetch and deerweed. Some researchers maintain that it is possible that genetic differences exist between seaward-facing peninsular populations (PVB) and the extant Navy colony.

Several other butterfly species are considered uncommon in Los Angeles County, some having federal status (i.e., species of special concern), and others that warrant careful monitoring due to declining populations or extremely limited ranges within Los Angeles County. These include the San Emigdio blue (*Plebulina emigdionis*), the Santa Monica Mountains hairstreak (*Satyrium auretteorum fumosum*), the wandering skipper (*Panoquina errans*), and the Tehachapi Mountain silverspot (*Speyeria egleis tehachapina*).

Several additional butterfly species that appear to be declining (or may be extirpated) in Los Angeles County, but remain common in other areas of their respective ranges include the purplish copper (*Lycaena helloides*), giant copper (*Lycaena xanthoides*), Columella hairstreak (*Strymon columella istapa*), southern sylvan hairstreak (*Satyrium sylvinum sylvinum*), western tailed blue (*Everes amyntula*), coastal arrowhead blue (*Glaucopsyche pius sagittigera*), California ringlet (*Cenonympha tullia californica*), and sylvan satyr (*Cercyonis sthenele sylvestris*).

Sensitive butterflies considered to have potential for occurrence on the subject property, based on known ranges, the presence of associated vegetation communities, elevations on site, host plant availability within the general vicinity, and other requirements, are discussed in more detail below.

San Emigdio Blue Butterfly (*Plebulina emigdionis*)

The SEB is a federal species of concern and is restricted to southern California in lower Sonoran and riparian habitats from the Owens Valley south to the Mojave River and west to northern Ventura and Los Angeles Counties. This butterfly can be locally abundant in



association with its primary host plant, four-wing saltbush (*Atriplex canescens*). This butterfly has also been observed in association with quail bush (*Atriplex lentiformis*) at scattered locations. The limited distribution of SEB was perplexing to early researchers based on the abundance and widespread distribution of its host plant, which occurs throughout the western United States. SEB larvae have formed a symbiotic relationship with at least one ant species, *Formica pilicornis* (Ballmer *et al*, 1991). This may account for, at least in part, SEB's limited range. These ants presumably extract droplets (containing glucose and amino acids) from the nectary glands of SEB larvae and the ants offer the larvae protection from predators. This relationship is actually quite common among other members of the butterfly family Lycaenidae, to which the SEB belongs. The male butterfly is small (approximately 20-25 millimeters in wingspan) and is blue with a wide brown border on the dorsal wing surface. The slightly larger female is primarily brown with blue at the wing bases and orange bands on the edges of the dorsal wing surface. The ventral wing surface of both sexes is mostly white with small black dots, with smaller blue dots along the hind wing edges.

SEB adults are active from late April to early September. The SEB can have up to three broods per year with the first brood in late April to May, the second brood from late June to early July, and the third brood in August to early September (Emmel *et al*, 1973). Adults are generally observed perching on their host plant or on other plants in the immediate vicinity, and have also been observed nectaring on nearby flowers. The females deposit single echinoid eggs on the leaves of the host plant after mating. These eggs hatch in about eight to ten days and the larvae begin feeding on the leaves immediately. Diapause normally occurs in the late or last instar of larval development, presumably in the second and/or third broods depending on climatic conditions. The mature larva is variable in color from blue, green, brown, and combinations thereof, and is densely covered with fine white hairs. Retractable glands located on the eleventh larval segment can be protruded when stimulated. Researchers believe these organs are attractive to ants (Emmel *et al*, 1973).

There are several other Lycaenid butterflies classified as 'blues' (subfamily Polyommatae) that occur with the SEB in portions of its range. Some of these species are similarly sized and have markings that can be easily confused with SEB. Commonly observed sympatric butterfly species include the blue copper (*Lycaena heteronea*), southern blue (*Glaucopsyche lygdamus australis*), Boisduval's blue (*Icaricia icaroides*), acmon blue (*Icaricia acmon*), western tailed-blue (*Everes amyntula*), marine blue (*Leptotes marina*), pigmy blue (*Brephidium exilis*), Bernardino blue (*Euphilotes bernardino*), and square-spotted blue (*Euphilotes battoides*). SEB can be initially distinguished from many of these species by its relatively large size and its strong association with four-wing saltbush or quail bush.

Due to its extremely limited distribution in southern California and its propensity for isolated small colonies, the SEB can be easily impacted by anthropogenic disturbances. Many colonies in the Mojave Desert and Owens Valley are isolated and are probably not under any immediate threat, but other colonies found closer to growing desert communities and suburban Los Angeles cities are situated near major roads, railroad tracks and other developments, which may contribute to further decline. Some of these populations have already been extirpated; others are threatened by these impacts.



Some of the known localities for this species include the Lower Haiwee Reservoir in Inyo County, Mojave River area near Victorville, and Bouquet and Mint Canyons in Los Angeles County. It is thought that populations in the Mint Canyon area near Santa Clarita were extirpated in the late 1980's and early 1990's. However, Guy Bruyera did observe one extant SEB population in nearby Soledad Canyon as recently as August 1999.

Quino Checkerspot Butterfly (*Euphydryas editha quino*)

The United States Fish and Wildlife Service (Service) added this rare butterfly to the federal list of endangered wildlife in early 1997. The QCB is a geographic race (subspecies) of *Euphydryas editha*, whose combined ranges extend from northern Baja California to Canada along the Pacific coast, and east to Colorado (Bauer, 1975). This subspecies is presently known to exist only as several, probably isolated, colonies in southwestern Riverside County, southern San Diego County and northern Baja California, Mexico.

This butterfly is associated with sparsely vegetated or bare areas usually characterized by clay or cryptobiotic soil deposits that develop a hard crust within southern California sage scrub vegetation communities. Low-growing herbaceous annuals including the QCB's primary larval host plant, dot-seed plantain, *Plantago erecta* (Plantaginaceae), typically inhabit these areas. Other potential QCB host plants (considered secondary) may occupy these areas and include owl's clover (*Castilleja exserta*) and white snapdragon (*Antirrhinum coulterianum*), both in the plant family Scrophulariaceae.

Focused surveys for the QCB were not conducted as part of this survey as they are not expected to occur. Mr. Bruyera currently holds a valid section 10(a)(1)(A) QCB recovery permit for QCB issued under the Endangered Species Act of 1973, as amended (Permit Number TE-837439-4).

Monarch Butterfly (*Danaus plexippus*)

The widespread monarch butterfly can be observed throughout southern California in the coastal, lowland, and foothill areas, and occasionally in desert and mountain areas where its larval host plant, various milkweeds (genus *Asclepias*), occurs. Monarchs are renowned migrants, and large numbers can be observed along the California coast in the fall months as they migrate to overwintering sites along the California coast and into Mexico. A few California sites (e.g. Pacific Grove) support concentrated numbers of the overwintering adults on trees; usually the adults hibernate as scattered individuals or in small clusters (Emmel et al, 1973).

Although the monarch butterfly may be declining due to land conversion and loss of larval host plant resources throughout its range, populations of this butterfly appear to be stable. However, existing and potential over-wintering sites along the southern California coast supporting large trees (primarily Eucalyptus and/or Pines) are considered important for the long-term survival of western United States populations.



METHODS

The Newhall Ranch site was surveyed for a total of thirty-two person-days by Guy Bruyee and CBI associate biologists Gregory Chatman, Bill Gendron, Andrew Carmichael, Jessica Turner, David Hawks, Patrick Luft, and Dean Wagner on April 10, 21, 25, 29, 30, May 2, 5, 6, 9, 16, 19, and 20, 2004. Date and times of the survey visits, weather conditions at the start and end of each survey period, and survey results are summarized in **Table 2**.

Table 2.

Newhall Ranch Site Butterfly Survey Information
April-May 2004

Date	Time PST	Weather	Wind	Biologists	Results
4/10	0900-1500	Sunny, 64-78 °F	0-3	AC, JT, PL, DW	No sensitive species observed
4/21	0900-1500	Ptly Cldy, 63-78 °F	0-2	GC, BG	No sensitive species observed
4/25	0900-1500	Sunny, 62-80 °F	0-2	GC, BG, DW, DH	No sensitive species observed
4/29	0900-1500	Sunny, 72-83 °F	1-2	GB, PL	No sensitive species observed
4/30	0900-1500	Sunny, 75-88 °F	1-3	GC, BG	No sensitive species observed
5/02	0900-1500	Sunny, 76-95 °F	1-3	AC, JT, GB	SEB observed Oak Valley
5/05	0900-1500	Sunny, 75-90 °F	0-2	GC, BG	No sensitive species observed
5/06	0900-1500	Sunny, 74-91 °F	0-2	GB, DW	No sensitive species observed
5/09	0900-1500	Sunny, 78-88 °F	0-3	AC, JT, GB, BG	No sensitive species observed
5/16	0900-1500	Sunny, 72-82 °F	0-1	GC, BG, GB	SEB observed Oak Valley
5/19	0900-1500	Sunny, 73-79 °F	0-3	GC, BG	No sensitive species observed
5/20	0900-1500	Ptly Cldy, 62-73 °F	1-2	GB, PL	No sensitive species observed

Biologists: GB (Guy Bruyee), GC (Gregory Chatman), BG (Bill Gendron), AC (Andrew Carmichael), JT (Jessica Turner), DH (David Hawks), PL (Patrick Luft), and DW (Dean Wagner)

The primary focus of this survey was to determine the presence or absence of SEB, QCB and their associated host plants. Special consideration was given to areas supporting native vegetation that may include specific larval host plant habitat requirements for any of the aforementioned sensitive species. The presence or absence of invasive, non-native plant species was noted in an effort to assess the level of previous disturbance in a given area. Other habitat requirements including the presence of potential nectar resources and the



overall quality of the site as it pertains to potential QCB topographical resources (i.e., hilltops) were assessed.

This field survey was conducted during daylight hours from 0900 to 1500 Pacific Daylight (Savings) Time. Temperatures recorded during the survey ranged from 62 to 93 °F (degrees Fahrenheit) and conditions varied from clear to partly cloudy with little or light winds (at or less than 1 Beaufort scale). Guy Bruyey and CBI associate biologists identified all butterfly species in the field. Other wildlife species (including other invertebrates) were identified in the field or later identified using various texts.

Daily weather data were noted on field forms and/or a digital audio recorder approximately once per hour during survey visits. Weather data were recorded using a digital anemometer (Beaufort scale of wind speed measurement), thermometer, and by visual observation and estimation of cloud cover and other pertinent daily weather characteristics (rain, drizzle, marine layer, etc.). Digital recordings were later transcribed to field forms.

Not all plants and/or associated butterfly species that may have been present on site were necessarily observable (or identified) during this survey. For an exhaustive assessment of the butterfly fauna of a given area, surveys would be required throughout the year. Guy Bruyey and CBI associate biologists general knowledge of the butterfly diversity for this area was utilized in an effort to locate specific habitats for some butterfly species. A California Natural Diversity Database (CNDDDB) records search was conducted prior to the start of this survey to determine the probability that sensitive butterfly species may be present on the site.

Nomenclature used in this report was primarily derived from Hickman (1993) for plants; Emmel et al. (1973), Howe (1975), and Emmel (1998) for butterflies; and Arnett (2000) for other insects. Additional resources are listed at the end of this report.

Site Description

Much of the site supports a mixture of disturbed and relatively undisturbed coastal sage chaparral scrub and coastal sage scrub. Oil wells, pipelines, associated structures, access roads (primarily unimproved) and other associated disturbances are present throughout the Potrero Valley sub area, but these occupy a relatively small portion of the overall survey area.

Other undeveloped lands associated with the Newhall Ranch Project (Stevenson Ranch Phase V and Magic Mountain Entertainment sub areas) occur to the east of the subject property. Guy Bruyey and CBI biologists conducted special-status butterfly surveys on both of these sub areas of the Newhall Project in April and May 2004.

Topographically, the site is characterized by gently to steeply sloping hills and ridgelines with a mixture of shallow to steep canyons and flat mesa areas. Adjacent lands contain a mixture of flat areas associated with the Santa Clara River basin, or significant topographic relief in association with the Santa Susana Mountains. The Newhall Ranch site has a combined maximum vertical relief of roughly 900 feet between its highest and lowest on-site



elevation points. Elevations on the site range from approximately 900 to 1800 feet above mean sea level.

Land use varies considerably within and adjacent to the survey area, and includes anthropogenic disturbances associated with Six Flags Magic Mountain Park east of the site, and other human-related disturbances such as actively cultivated in-use agricultural fields, oil fields, fallow fields, industrial and commercial areas, paved and unimproved roads, transmission lines, and other developments. Other less disturbed areas containing a mixture of coastal sage chaparral scrub and other vegetation communities are present surrounding the subject property. Areas to the southeast of the site (adjacent to the Phase V (not a part) sub area) contain recently constructed high-density residential developments.

Vegetation Characteristics

The subject property is mostly undisturbed away from roads (both improved and unimproved) and activities related to existing oil wells, although low-growing weedy annuals have invaded the native understory throughout the site, possibly out-competing many native low-growing forbs. The site is inhabited with a mixture of coastal sage scrub, coastal sage chaparral scrub, valley oak woodland, open coast live oak woodland, and riparian vegetation communities. Cleared or disturbed areas are present in association with farming, cattle grazing, existing roads and other developments, and disking was observed on a portion of the site during the current study. The northwestern portion of the site (primarily the Homestead sub area) is in various stages of recovery as a result of the "Verdale Fire," which burned approximately 8,700 acres in October 2003.

Coastal Sage Scrub (Holland Element Code 32200)

Coastal sage scrub (CSS) contains mostly drought-deciduous shrubs with small leaves. CSS is primarily defined by the presence of California buckwheat (*Eriogonum fasciculatum*) and/or California sagebrush (*Artemisia californica*). Several large patches of relatively undisturbed CSS occur in areas not historically cleared. Relatively few associated CSS shrubs and other plants were present, but did include white sage (*Salvia apiana*), blue elderberry (*Sambucus mexicana*), woolly aster (*Lessingia filaginifolia*), chaparral yucca (*Yucca whipplei*), and deerweed (*Lotus scoparius*).

Non-native grasses occurring abundantly in these areas of the site included slender wild oats (*Avena barbata*), ripgut (*Bromus diandrus*), and foxtail chess (*Bromus madritensis* ssp. *rubens*).

A matrix of open patches can be found throughout areas inhabited with CSS on site, containing a mixture of native and non-native low-growing annuals including owl's clover (*Castilleja exserta*), clarkia (*Clarkia* sp.), lupine (*Lupinus* sp.), and whispering bells (*Emmenanthe penduliflora*). Diversity of native annuals appeared relatively low on the subject property, probably due to the presence of invasive and dense non-native vegetation. However, due to the timing of the current survey, the presence or absence of many annual plant species within these open patches could not be adequately assessed.



Coastal Sage-Chaparral Scrub (Holland Element Code 37G00)

Coastal sage-chaparral scrub (CSCS) contains a mixture of sclerophyllous low chaparral shrubs and drought-deciduous sage scrub species, and is regarded as an ecotone between the two communities. These areas include floristic elements of both coastal sage scrub and lower chaparral, including shrubs such as California buckwheat, California sagebrush, chamise (*Adenostoma fasciculatum*), purple sage (*Salvia leucophylla*), and white sage (*Salvia apiana*).

Scattered throughout this vegetation community, within less dense (and open) areas, are native species including blue elderberry, sapphire woolstar (*Eriastrum sapphirinum*), tarplant (*Hemizonia* sp.), bush mallow (*Malacothamnus fasciculatus*), woolly aster (*Lessingia filaginifolia*), wishbone bush (*Mirabilis californica*), and other herbaceous annuals.

Open Coast Live Oak Woodland (Holland Element Code 71161)

This habitat type consists of evergreen woodland dominated by low-density coast live oak (*Quercus agrifolia*) trees, found mostly on north-facing slopes and shaded ravines. A diverse shrub understory is usually present.

A small grove of mature coast live oak trees was observed at the extreme eastern portion of the Potrero Valley sub area. This grove continues offsite east into the Phase V sub area. Understory plants primarily consisted of non-native grasses and other weedy annuals.

Southern Cottonwood/Willow Riparian (Holland Element Code 61320)

Mulefat Scrub (Holland Element Code 63310)

Disturbed Wetland (Holland Element Code 11200)

Southern cottonwood/willow riparian and mulefat scrub are dependent on periodic flooding and are characterized by the presence of mostly winter deciduous trees, including willow (*Salix* species), mulefat (*Baccharis salicifolia*), and Fremont's cottonwood (*Populus fremontii*).

A mixture of intact and partially degraded riparian areas is located within Potrero Canyon and other areas of the site. The understory is inhabited with a mixture of native and non-native plants.

Disturbed / Ruderal Habitat (Holland Element Code 11300)

Disturbed/ruderal (weedy) habitat includes areas dominated with non-native plant species such as ornamental and invasive exotic species. Non-native, weedy species are predominant in most open areas of the site, especially within the Potrero Valley and Orion Fields sub areas. The most common invasive plants observed included short-pod mustard (*Hirschfeldia incana*), horehound (*Marrubium vulgare*), tocalote (*Centaurea melitensis*), cheeseweed (*Malva parviflora*), sourclover (*Melilotus indica*), Indian clover (*Lotus purshianus*), and filaree (*Erodium* sp.). Other plants including Russian thistle (*Salsola tragus*), doveweed (*Eremocarpus setigerus*), prickly lettuce (*Lactuca serriola*), jimsonweed (*Datura wrightii*), telegraph weed (*Heterotheca grandiflora*), and various non-native grasses including foxtail chess, slender wild oat, and other unidentified grass species. A few native species that are tolerant of disturbance such as fiddleneck (*Amsinckia menziesii*) and dove lupine (*Lupinus bicolor*) were locally abundant along road and trail margins, and in other open areas of the site.



Extensive Agriculture (Fields) (Holland Element Code 18300)

Portions of the survey area have been converted for agricultural use and contain a mixture of wheat, onion, and other crops. Some invasive plants were observed within these fields, including lamb's quarters (*Chenopodium* sp.), wild heliotrope (*Heliotropium curassavicum*), calabazilla (*Cucurbita foetidissima*), and knotweed (*Polygonum aviculare*). Agricultural areas are primarily located within the River Village sub area at the northern portion of the survey area just north of the Santa Clara River basin. Additionally, portions of the Oak Valley, Onion Fields, and Mesas West sub areas have lands converted for agricultural use.

RESULTS

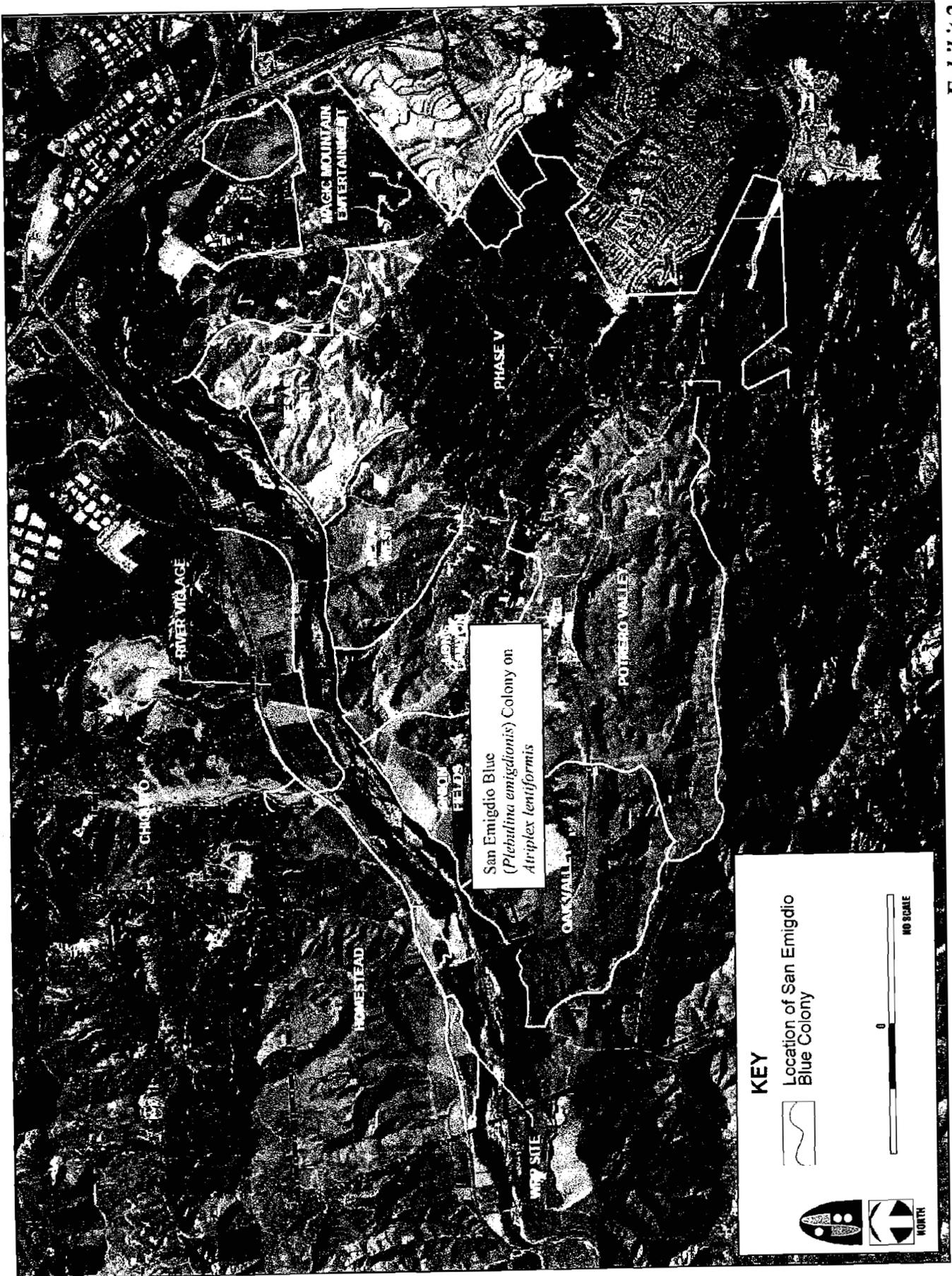
No SEB were observed within the Potrero Valley, Onion Fields, Long Canyon, Mesas East, Mesas West, Homestead, River Village, Chiquito and WRP sub areas during the present study. This species is strongly associated with its larval host plant where it occurs, and no suitable patches of *Atriplex* were observed within the Potrero Valley, Long Canyon, Onion Fields, Mesas East, Mesas West, River Village, Chiquito and WRP sub areas. Patches of *Atriplex lentiformis* were observed lining the entire onsite portion of San Martinez Grande Canyon within the Homestead sub area, but no SEB were observed at this location after careful searching during four person-day visits on days suitable for potential SEB activity. Although suitable larval host plant habitat is present within the Homestead sub area, it appears that other SEB habitat requirements are not supported based on the results of this survey.

SEB was observed within Potrero Canyon at the north-central edge of the Oak Valley sub area on two dates (May 2 and May 16) during this study. This SEB colony is strongly associated with *Atriplex lentiformis* where two low-relief drainages converge just north of the Santa Clara River basin and gated site boundary (**Exhibit 2**). It is estimated that approximately twenty adult SEB were observed perched on *Atriplex* plants at this location during the present study.

Although historic records exist for areas southeast of the site in Bouquet, Soledad and Mint canyons, this species is presumed extirpated from most areas east of the site due to increased human-related activities including commercial and residential developments, agricultural operations, ORV use, and other disturbances. It is our understanding that the SEB colony observed within the Oak Valley sub area during this study may in fact represent one of the westernmost known occupied localities for this species (David Hawks, pers. comm.).

The present study indicates that most sub areas of the Newhall site, with the exception of the northern portion of Oak Valley, do not currently support potential habitat for SEB. This conclusion is primarily based on the absence of suitable *Atriplex* patches throughout a majority of the Newhall survey area, and the results of the current butterfly survey conducted during the SEB flight season. Additionally, the lack of historical SEB data from this region of Los Angeles County west of I-5 further illustrates its rarity in the region.





KEY

Location of San Emigdio Blue Colony

NO SCALE

0

NORTH

Exhibit 2
SAN EMIGDIO BLUE LOCATIONS

Based on the results of the present study, it can be reasonably concluded that the Potrero Valley, Onion Fields, Long Canyon, Mesas East, Mesas West, River Village, Chiquito and WRP sub areas do not support suitable SEB habitat and that SEB is not expected to occur within these sub areas. Although suitable habitat appears to be present, SEB is not expected to occur within the Homestead sub area based on the results of this study. Additionally, SEB is not expected to occur within disturbed or sage scrub areas away from drainages and suitable *Atriplex* habitat within the Oak Valley sub area. SEB may occupy areas just offsite within the Salt Canyon area where extensive patches of *Atriplex* are known to occur.

The present study indicates that the property does not currently support high quality potential habitat for QCB. This conclusion is primarily based on the lack of historical QCB data from this region of Los Angeles County, and the apparent absence of its primary host plant, dot-seed plantain, which was not detected on site during this survey. Additionally, QCB was historically known from two locations in the Santa Monica Mountains approximately 25 to 30 miles south and southwest of the subject property, but has not been observed in those areas since 1954. Extant QCB populations are found much further south and southeast in Riverside and San Diego Counties. It is highly unlikely that QCB once occupied the Santa Clarita area due to a lack of records indicating its presence in the northern portion of Los Angeles County. Therefore, it can be reasonably concluded that the subject property does not support suitable QCB habitat and that QCB is not expected to occur on site.

Individual monarch butterflies were observed on the subject property during the present study. Milkweeds (*Asclepias* sp.) may be present on or near the subject property, and would be available as a potential oviposition site for passing females. However, due to the site's distance away from coastal areas, it is highly unlikely that the site would be utilized by large numbers of overwintering adults.

With the exception of the SEB colony observed within the Oak Valley sub area during this study, it is our understanding that no recent data suggest that occupied habitat exists on any other portion of the Newhall site for the sensitive butterfly species discussed in this report and based on the survey results, none are expected to occur.

Other Lepidoptera Observations

A total of thirty-seven (37) common butterfly species were observed on the property during the present survey (Table 3). In general the Newhall site appears to support habitat conducive to a good diversity of butterfly fauna. Many butterflies were uncommon, however, and other species expected to occur on the site were not observed. This may be due, in part, to relatively dry conditions throughout the late spring months just prior to the survey, and/or the time limits of the present study.



Table 3.

Newhall Ranch Site Lepidoptera Observations

Common Name / Scientific Name	Notes
Anise Swallowtail (<i>Papilio zelicaon</i>)	Uncommon on ridgelines and hilltops
Western Tiger Swallowtail (<i>Papilio rutulus</i>)	Uncommon; riparian areas
Checkered White (<i>Pontia protodice</i>)	Common; all areas
Cabbage White (<i>Pieris rapae</i>)	Common; riparian and shaded areas
Becker's White (<i>Pieris beckeri</i>)	Uncommon; associated with <i>Isomeris arborea</i>
Alfalfa Butterfly (<i>Colias eurytheme</i>)	Common; especially within or near agricultural areas
Harford's Sulfur (<i>Colias alexandria harfordii</i>)	Uncommon in native habitats only
Sara Orange-tip (<i>Anthocharis sara</i>)	Common; especially in canyons and small drainages
Painted Lady (<i>Vanessa cardui</i>)	Abundant throughout site; migratory
Red Admiral (<i>Vanessa atalanta</i>)	Common, especially near <i>Urtica</i> patches in riparian
West Coast Lady (<i>Vanessa annabella</i>)	Common throughout site
Chalcedon Checkerspot (<i>Euphydryas chalcedona</i>)	Common; especially on ridgelines and hilltops
Gabb's Checkerspot (<i>Charidryas gabbi</i>)	Uncommon; native areas inhabited with <i>L. flaginifolia</i>
Lorquin's Admiral (<i>Basalarchia lorquini</i>)	Uncommon; riparian areas inhabited with <i>Salix</i>
California Sister (<i>Adelpha bredowii californica</i>)	Common; strongly associated with oaks (<i>Quercus</i> sp.)
Buckeye (<i>Junonia coenia</i>)	Common throughout site
Monarch (<i>Danaus plexippus</i>)	Uncommon throughout site
California Ringlet (<i>Cenonympha tullia californica</i>)	Rare on site; associated with native grasslands
Funereal Duskywing (<i>Erynnis funeralis</i>)	Common throughout site
Mournful Duskywing (<i>Erynnis tristis</i>)	Uncommon; associated with oaks (<i>Quercus</i> sp.)
Western Checkered Skipper (<i>Pyrgus communis albescens</i>)	Common throughout site
Large White Skipper (<i>Heliopetes ericetorum</i>)	Common in native habitats
Rural Skipper (<i>Ochlodes agricola</i>)	Common in native habitats
Sandhill Skipper (<i>Polites sabuleti</i>)	Common; strongly associated with saltgrass (<i>Distichlis</i>)
Behr's Metalmark (<i>Apodemia mormo virgulti</i>)	Abundant; strongly associated with <i>E. fasciculatum</i>
Fatal Metalmark (<i>Calephelis nemesis</i>)	Uncommon; observed on Chiquito sub area only
Southern Blue (<i>Glaucopsyche lygdamus australis</i>)	Uncommon in 2004; usually common in canyons
Acmon Blue (<i>Icaricia acmon</i>)	Common throughout site including disturbed areas
Lupine Blue (<i>Icaricia lupini</i>)	Rare on site; associated with <i>Eriogonum</i>
San Emigdio Blue (<i>Plebulina emigdionis</i>)	Rare; strongly associated with <i>Atriplex</i> and certain ants
Bernardino Blue (<i>Euphilotes bernardino</i>)	Common; strongly associated with <i>E. fasciculatum</i>
Pigmy Blue (<i>Brephidium exilis</i>)	Abundant throughout site including disturbed areas
Western-tailed Blue (<i>Everes amyntula</i>)	Rare on site; associated with <i>Astragalus</i>
Great Copper (<i>Lycaena xanthoides</i>)	Uncommon; observed on Chiquito sub area
Common Hairstreak (<i>Strymon melinus</i>)	Common throughout site
Great Purple Hairstreak (<i>Atlides halesus</i>)	Uncommon; associated with mistletoe (<i>Phorodendron</i> sp.)
Western Elfin (<i>Incisalia augustinus iroides</i>)	Uncommon on site in native habitats only
37 Species Total	



Butterfly species commonly observed during the present study included painted lady (*Vanessa cardui*), California sister (*Adelpha bredowii californica*), sara orange-tip (*Anthocharis sara*), cabbage white (*Pieris rapae*), pigmy blue (*Brephidium exilis*), funereal duskywing (*Erynnis funeralis*), and large white skipper (*Heliopetes ericetorum*). Other butterflies frequently observed included alfalfa sulfur (*Colias eurytheme*), buckeye (*Junonia coenia*), west coast lady (*Vanessa annabella*), acmon blue (*Icaricia acmon*), and Behr's metalmark (*Apodemia mormo virgulti*). The site and survey area includes topographic features such as ridgelines and prominent hilltops, which can be considered significant as potential hilltopping sites for butterflies in the immediate area. Common hilltopping species observed on scattered hilltops throughout the Newhall site include chalcidon checkerspot (*Euphydryas chalcedona*), anise swallowtail (*Papilio zelicaon*), and checkered white (*Pontia protodice*).

Interestingly, California ringlet was observed on the Mesas East sub area within the Newhall Ranch site during this study. Although this species remains relatively common throughout portions of its range, populations are declining in Los Angeles County. Guy Bruyey observed one additional California ringlet on the Magic Mountain Entertainment site approximately 0.5 to 1 mile east of the subject property during 2004 butterfly surveys.

Several great copper (*Lycaena xanthoides*) were observed within the Chiquito sub area. Due to urban expansion and confinement of natural creek flow patterns throughout Los Angeles County, this butterfly has become increasingly uncommon in this region of southern California. The flight season of this single-brooded butterfly is typically in April and May, and into June and July at upper elevations. The larval host plant is various *Rumex* species, which were observed commonly on the subject property. This species is now mostly confined to the mountain foothills of the Santa Ana Mountains in Los Angeles County (Mattoni, 1990).

Additional butterfly species are expected to occur on site not observed during the present study due to seasonal restrictions and other factors. A complete list of butterfly species with potential for occurrence, based on the vegetation present, the site's location, and other factors, is included as part of this report (Appendix A).

CONCLUSIONS

During the thirty-two day survey effort, the entire Newhall Ranch site was specifically surveyed for the sensitive butterfly species described above. Additionally, a general butterfly inventory (both observed and expected to occur) was performed. Based on seasonal precipitation patterns in the late winter and spring months of 2004, butterfly activity was considered relatively 'productive' for most species based on the results of this study.

An SEB colony was observed at the northwest edge of the Oak Valley sub area during the present study in association with patches of its larval host plant, *Atriplex lentiformis*. Based on the absence of SEB larval host plant patches and the absence of SEB adult observations throughout all other sub areas of the Newhall Ranch site during the present study, and other



information presented in the above report, it can be reasonably concluded that SEB is not currently present and is not expected to occur within the Potrero Valley, Onion Fields, Long Canyon, Mesas East, Mesas West, River Village, Homestead, Chiquito, and WRP sub areas.

Due to the lack of recent QCB observations for Los Angeles County, the apparent absence of primary larval host plants (i.e. *P. erecta*) and lack of suitable high quality habitat, and the site location (not known to be within the historical range of QCB), it is highly unlikely that a QCB breeding population or the occasional dispersing individual QCB would utilize the subject property.



REFERENCES

- Arnett, Ross H. Jr. 2000. American Insects: A Handbook of the Insects of America North of Mexico. CRC Press, New York, New York. 1003pp.
- Ballmer, G. R. and G. Pratt. 1991. Quantification of Ant Attendance (Myrmecophily) of Lycaenid Larvae. Jour. Research on the Lepidoptera 30(1-2):95-112.
- Ballmer, G. R., D. Hawks, K. Osborne, G. Pratt. 1998. The Quino Checkerspot (*Euphydryas editha quino*). Unpublished manuscript for UCR Quino Workshop.
- Bruyca, Guy P. 2004. Field notes for the Newhall sensitive butterfly survey. April-May.
- Carmichael, Andrew. 2004. Field notes for the Newhall sensitive butterfly survey. April-May.
- Chatman, Gregory K. 2004. Field notes for the Newhall sensitive butterfly survey. April-May.
- Emmel, Thomas C. and J.F. Emmel. 1973. *The Butterflies of Southern California*. The Natural History Museum of Los Angeles County, Science Series 26.
- Emmel, Thomas C. 1998. Systematics of Western North America Butterflies. Mariposa Press, Gainesville, Florida.
- Hickman, James C. (editor). 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley and Los Angeles.
- Hogue, Charles L. 1974. *Insects of the Los Angeles Basin*. Natural History Museum of Los Angeles County.
- Howe, William H. 1975. *The Butterflies of North America*. Doubleday & Company, Inc. Garden City, New York. 633pp.
- Mattoni, Rudi and Greg Ballmer. 1990. *Butterflies of Greater Los Angeles County*. Lepidoptera Research Foundation, Inc.
- McAuley, Milt. 1996. *Wildflowers of the Santa Monica Mountains*. Canyon Publishing Company, Canoga Park, California.
- Orsak, L. J. 1977. *The Butterflies of Orange County, California*. University of California, Irvine, California.



REFERENCES (Continued)

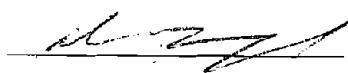
- Sawyer, John O. and Todd Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society, Sacramento, California. 471pp.
- Scott, J. A. 1986. *The Butterflies of North America, a Natural History and Field Guide*. Stanford University Press, Stanford, California. 583pp.
- Turner, Jessica. 2004. Field notes for the Newhall sensitive butterfly survey. April-May.



Certification and Signature Page

± 4000-acre Newhall Development Site
Los Angeles County, California
September 16, 2004

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

 Date 9/15/04

Dave Crawford, Principal Biologist
Compliance Biology, Inc.
1936 N. Croydon Ave.
Camarillo, CA 93010

 Date 9-16-04

Guy P. Bruyey, Principal Biologist
Bruyey Biological Consulting
43146 Sampson Court
Hemet, CA 92544



Appendix A

Butterfly Species with potential for occurrence on the Newhall Ranch Site Los Angeles County, California June 2004

Observed butterfly species (N=29) are indicated with an asterisk. Two asterisks indicate special status and/or narrow-endemic species. Butterfly species included on this list have varying degrees of potential for occurrence on the subject property. Potential for occurrence is based on a combination of known range (historical and present), host plant presence/absence, and other factors. Not all butterfly species that may be resident on the site were necessarily observed during this survey. For an exhaustive butterfly assessment, surveys are best performed from February to September to achieve a thorough inventory.

<u>Family / Scientific Name</u>	<u>Common Name</u>
Order Lepidoptera	Butterflies and Moths
Papilionidae	Swallowtails
<i>Papilio rutulus</i>	Western Tiger Swallowtail*
<i>Papilio eurymedon</i>	Pale Swallowtail*
<i>Papilio zelicaon</i>	Anise Swallowtail*
Nymphalidae	Brush-footed Butterflies
<i>Danaus gilippus</i>	Striated Queen
<i>Danaus plexippus</i>	Monarch*
<i>Cecononympha tullia californica</i>	California Ringlet
<i>Agraulis vanillae incarnata</i>	Gulf Fritillary
<i>Basilarchia lorquini</i>	Lorquin's Admiral*
<i>Adelphia bredowii californica</i>	California Sister*
<i>Euphydryas chalcedona</i>	Chalcedon Checkerspot*
<i>Junonia coenia</i>	Buckeye*
<i>Charidryas gabbii</i>	Gabb's Checkerspot*
<i>Phyciodes mylitta</i>	Mylitta Crescent
<i>Polygonia satyrus</i>	Satyr Anglewing
<i>Nymphalis californica</i>	California Tortoise-shell
<i>Nymphalis milberti</i>	Milbert's Tortoise-shell
<i>Nymphalis antiopa</i>	Mourning Cloak
<i>Vanessa virginiensis</i>	Virginia Lady
<i>Vanessa atalanta</i>	Red Admiral*
<i>Vanessa cardui</i>	Painted Lady *
<i>Vanessa annabella</i>	West Coast Lady*
Riodinidae	Metalmarks
<i>Apodemia mormo</i>	Mormon Metalmark*



Appendix A (continued)

Family / Scientific Name

Order Lepidoptera

Lycaenidae

Atlides halesus
Callophrys perplexa
Euphilotes bernardino
Incisalia augustinus iroides
Icaricia acmon
Icaricia lupini
Plebulina emigdionis
Everes amyntula
Glaucopsyche lygdamus australis
Hemiargus ceraunus gyas
Hemiargus isola alce
Leptotes marina
Brephidium exilis
Lycaena xanthoides
Satyrium californica
Satyrium sylvinus sylvinus (or *sylvinus dryope*)
Strymon melinus

Pieridae

Colias eurydice
Colias alexandra harfordii
Colias eurytheme
Nathalis iole
Anthocharis cethura
Anthocharis sara sara
Eurema nicippe
Phoebis sennae
Pontia protodice
Artogeia rapae

Hesperiidae

Lerodea eufala
Paratrytone melane
Hylephila phyleus
Atalopedes campestris
Ochlodes agricola
Polites sabuleti
Erynnis funeralis

Common Name

Butterflies and Moths

Blue, Hairstreaks, Coppers

Great Purple Hairstreak
 Bramble Hairstreak
 Bernardino Blue*
 Western Elfin*
 Acmon Blue *
 Lupine Blue*
 San Emigdio Blue*
 Western Tailed-blue*
 Southern Blue*
 Edward's Blue
 Reakirt's Blue
 Marine Blue
 Pigmy Blue *
 Great Copper
 California Hairstreak
 Sylvan Hairstreak
 Common Hairstreak*

Whites and Sulfurs

California Dogface
 Harford's Sulfur*
 Alfalfa Sulfur *
 Dwarf Yellow
 Felder's Orange-tip
 Sara Orange-tip *
 Nicippe Yellow
 Cloudless Sulfur
 Checkered White *
 Cabbage White *

Skippers

Eufala Skipper
 Umber Skipper
 Fiery Skipper
 Field Skipper
 Rural Skipper*
 Sandhill Skipper*
 Funereal Duskywing*



Appendix A (continued)

Hesperiidae (Continued)

Erynnis tristis

Heliopetes ericetorum

Pyrgus communis albescens

Skippers

Mournful Duskywing*

Large White Skipper*

West. Checkered Skipper*

